PhD Positions in Ecosystem Sciences and/or Microbial Ecology: **"Eco-physiological studies of greenhouse gas dynamics in tropical peatlands".**

The Cadillo Lab is seeking two PhD students to begin in 2027. Research in the Cadillo Lab (https://cadillo-lab.github.io/) examines interdisciplinary topics related to ecosystem processes, carbon cycling, and the role of microbes in ecosystem solutions at multiple scales, from the microbial to the regional, with an emphasis on tropical regions.

One PhD position focuses on transdisciplinary work in ecosystem analysis and integrating microbial activity and greenhouse gas flux predictions across pristine, degraded, or managed Tropical Peatlands. The incoming PhD student will study the spatial ecology of decomposers and greenhouse gas-cycling microbes, use genomic and metagenomic approaches to evaluate and predict microbial traits and their variation (cultured and uncultured), and collaboratively integrate trait-based values into GHG flux modeling, ecosystem restoration, and natural carbon solutions. This project uses a trait-based framework for key microbial guilds, including decomposers and GHG-producing or consuming microbes and their feedback to climate change.

The second PhD position expands the project's transdisciplinary nature and builds on high-intensity observations, including Eddy Covariance, remote sensing detection, hydrological monitoring, and ecosystem modeling, merging them with eco-societal studies to develop ecosystem-based natural solutions for rural or urban communities. A numerically driven background with experience in ecosystem sciences will be the ideal profile to join a multi-member team and develop geospatial outcomes built on an emerging network of towers in tropical peatlands. Contributions will focus on soil carbon stability across climates, GHG dynamics and emissions, and the role of vegetation in GHG fluxes and removal.

The students will join either an active NSF project or conduct independent research. Activities include fieldwork in English-, Spanish-, and Portuguese-speaking countries, depending on the project. Prior research experience in genomics or metagenomics, microbial physiology, and molecular microbial ecology is desirable for the first position; meanwhile, experience in ecosystem sciences, Eddy Covariance, or remote sensing is desirable for the second position, and any level of numerical modeling is a plus but not strictly required. The student will be expected to work collaboratively, participate in international training, and bridge field- and laboratory-based research.

Students with an appropriate background in any of the following fields: earth and environmental sciences, microbiology, bioinformatics, geochemistry, or related fields are encouraged to apply. We will give preference to students with a publication record or a master’s degree, strong quantitative skills, and relevant experience. Graduate studies begin

in Fall 2027, depending on project needs. To express interest before formally applying, please email Prof. Cadillo-Quiroz at cadillo-lab-appl@asu.edu and include a CV and a statement of your research interests and experience. Candidates are to be considered for admission through the PhD in Biology, PhD in Environmental Life Sciences (or Earth System Sciences), PhD in Microbiology, and PhD in Molecular Biology programs (November 15 is the expected deadline across programs, although late submissions could be considered).